Walking is a complex motor task generally performed automatically by healthy adults. Yet, by the elderly, walking is often no longer performed automatically. Older adults require more attention for motor control while walking than younger adults. Falls, often with serious consequences, can be the result. Gait impairments are one of the biggest risk factors for falls. Several studies have identified changes in certain gait parameters as independent predictors of fall risk. Such gait changes are often too discrete to be detected by clinical observation alone. At the Basel Mobility Center, we employ the GAITRite electronic walkway system for spatial-temporal gait analysis. Although we have a large range of indications for gait analyses and several areas of clinical research, our focus is on the association between gait and cognition. Gait analysis with walking as a single-task condition alone is often insufficient to reveal underlying gait disorders present during normal, everyday activities. We use a dual-task paradigm, walking while simultaneously performing a second cognitive task, to assess the effects of divided attention on motor performance and gait control. Objective quantification of such clinically relevant gait changes is necessary to determine fall risk. Early detection of gait disorders and fall risk permits early intervention and, in the best-case scenario, fall prevention. We and others have shown that rhythmic movement training such as Jaques-Dalcroze eurhythmics, tai chi and social dancing can improve gait regularity and automaticity, thus increasing gait safety and reducing fall risk.